## **CLAIMS:**

- 1. A method of determining an inflammatory state in a subject, comprising, determining the level of expression of A<sub>3</sub> adenosine receptor (A<sub>3</sub>AR) in white blood cells (WBC) from the subject, a high level of expression of A<sub>3</sub>AR being indicative of an inflammatory state in the subject.
- 2. The method of claim 1 wherein the level of said A<sub>3</sub>AR expression in the WBC is compared to a control level, the control level being the level of A<sub>3</sub>AR expression in normal WBC of a healthy subject, or being a standard reference level for the A<sub>3</sub>AR expression which is indicative of a normal state.
- 3. The method according to claim 1, wherein the inflammatory state is the result of an autoimmune disease.
- 4. The method according to claim 3, wherein the autoimmune disease is rheumatoid arthritis (RA).
- 5. A method for determining the severity of an inflammatory state in a subject comprising determining the level of expression of A<sub>3</sub>AR in WBC of the subject and comparing the level of expression of A<sub>3</sub>AR in the cells with the level of prior determined standards that correlate A<sub>3</sub>AR expression level with severity of infection.
- 6. The method according to claim 5, wherein the inflammatory state is the result of an autoimmune disease.
- 7. The method according to claim 6, wherein the autoimmune disease is rheumatoid arthritis (RA).
- 8. A method for determining the effectiveness of an anti-inflammatory therapeutic treatment of a subject, the treatment comprising administering an A<sub>3</sub>AR agonist to the subject, comprising determining the expression level of A<sub>3</sub>AR in white blood cells (WBCs) from the subject, in two or more successive time points, at least one of which is during an anti-inflammatory treatment, wherein a difference in the level being indicative of effectiveness of the drug treatment.

- 9. The method of claim 8 wherein one or more first samples are taken at a time point prior to initiation of the treatment and one or more second samples are taken at a time point during the treatment, wherein a decrease in the level of the A<sub>3</sub>AR expression in the one or more second samples as compared to the one or more first samples is indicative that the treatment is effective.
- 10. The method of claim 8 wherein one or more first samples are taken at a time point during the treatment and one or more second samples are taken at a time point during the treatment subsequent to the time point of the one or more first samples, wherein a decrease in the level of the A<sub>3</sub>AR expression in the one or more second samples as compared to the one or more first samples is indicative that the treatment is effective.
- 11. The method of claim 8 wherein one or more first samples are taken at a time point during the treatment and one or more second samples are taken at a time point after the treatment has been discontinued, wherein an increase in the level of the A<sub>3</sub>AR expression in the one or more second samples as compared to the one or more first samples is indicative that the treatment is effective.
- 12. The method according to claim 8 wherein said therapeutic treatment involves an anti-inflammatory drug.
- 13. The method according to claim 8, wherein the inflammatory state is the result of an autoimmune disease.
- 14. The method according to claim 13, wherein the autoimmune disease is rheumatoid arthritis (RA).
- 15. A method for selecting a subject suffering from a certain inflammatory disease, to receive anti-inflammatory therapeutic treatment that comprises administering to the subject an A<sub>3</sub> adenosine receptor (A<sub>3</sub>AR) agonist, the method comprising determining the level of expression of A<sub>3</sub>AR in the while blood cells (WBCs) of the subject and selecting the subject to receive said anti-inflammatory therapeutic treatment if said level is above a predetermined level.

- 16. The method of Claim 15, wherein said sample of WBC is taken from a subject before receiving an anti-inflammatory treatment.
- 17. The method according to claim 15, wherein the inflammatory state is the result of an autoimmune disease.
- 18. The method according to claim 18, wherein the autoimmune disease is rheumatoid arthritis (RA).
- 19. The method of Claim 15, wherein said anti-inflammatory therapeutic treatment comprises providing said subject with an anti-inflammatory amount of IB-MECA.
- 20. The method of Claim 15, for selecting a candidate for receiving antiinflammatory therapeutic treatment under clinical studies.